MONTANA ENERGY CODE

Montana Department of Environmental Quality

October 24, 2003

Why have an energy code?

- Reduces the financial cost of owning a house.
- Reduces the financial risk of owning a house.
- Reduces health and safety risks of outages.
- Reduces cost of providing energy to all customers.

What is a model energy code?

- Prepared by International Code Council.
- Recommends minimum acceptable standards for construction.
- Developed through a public hearing process by national experts.
- One of a family of model codes.
- Current code: 2000 IECC (soon to be updated)

History of Montana's energy code

- 1978 – first Model Energy Code (MEC)
- 1986 – 1983 MEC, with amendments
- 1989 – 1986 MEC, with amendments
- 1992 – 1991 MEC, with residential requirements
- 1994 – 1992 MEC residential
- 1996 – 1993 MEC with amendments

Current Montana Energy Code

Component	Equivalent path	Prescriptive path
Walls	R-19	R-21
Ceiling	R-38	R-42
Floors over unheated space	R-19	R-19
Basement wall *	R-10	R-11
Foundation	R-19	R-19
Door	R-2	R-5
Window	U-0.4	U-0.5

Why revise energy codes?

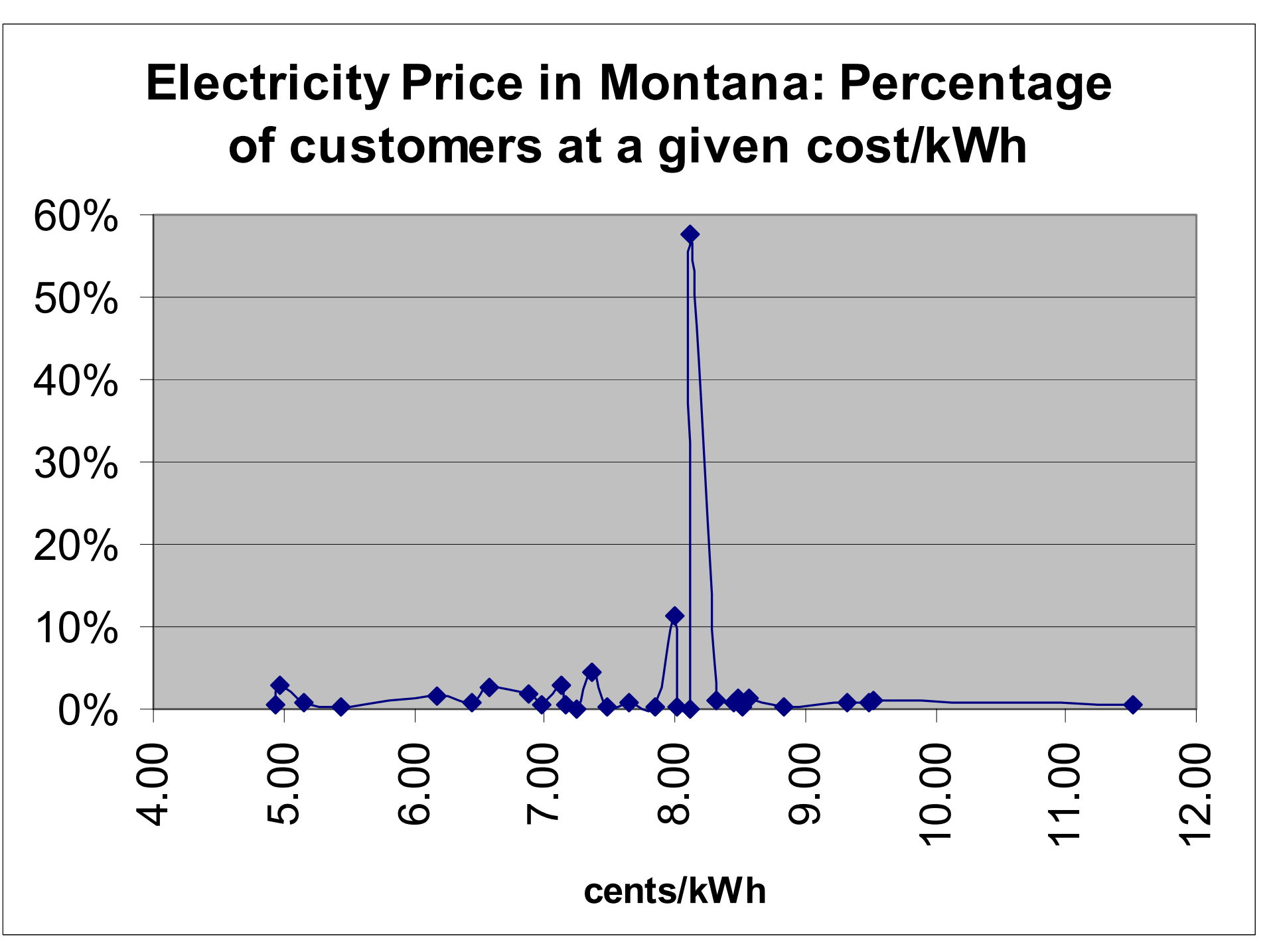
- Cost of energy has gone up.
- Mortgage rates have dropped.
- Energy costs are likely to fluctuate more.
- Other states are moving ahead.

Energy code changes in PNW

- Oregon and Washington energy codes were updated in 2001.
- Idaho adopted the 2000 International Energy Conservation Code (IECC) on January 1, 2003 in cities and counties that have adopted codes.
- The latest version of the Montana statewide energy code was adopted in 1996.

Prescriptive Paths

Component	Washington	Oregon	Idaho	Montana
Ceiling	38	38	49	38
Wall above ground	21	21	21	19
Floor over unheated spaces	30	25	21	19
Windows U values	.35	.40	.35	.40
Basement wall	interior - 21 exterior - 12	15	11	10*
Crawlspace wall or floor above	floor only - 30	wall - 15 floor - 25	20	19
Slab on grade	12	15	13	6


Electricity Price in Montana: Percentage of customers at a given cost/kWh
60%
50%
40%
30%
20%
10%
0%
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
cents/kWh

Current price of gas

- NorthWestern – $7.92/Dkt
- Montana-Dakota – $7.59/Dkt
- Energy West – $7.18/Dkt

(assumes 10 Dkt/month average consumption)

Weighted average ~ $7.70/Dkt

Changing prices 1995-2003

- Electricity 1995 - $0.06089/kWh
- Electricity 2003 - $0.07459/kWh
  (for 12 months ending July)

- Inflation-adjusted increase – 1.3%
  (without recent rate changes)

Changing prices 1995-2003

- Natural gas Oct 1995 - $5.48/Mcf
- Natural gas Oct 2003 - $7.70/Mcf

- Inflation-adjusted increase – 16.2%

Current Residential Code vs. Cost-Effective Levels

Component	Montana Equivalent Path	NWPCC Minimum Life Cycle Cost	NWPCC Total Resource Cost B/C Ratio
Ceiling (Attic)	R-38	R-49	1.10
Ceiling (Vault)	R-38	R-38	Baseline
Walls	R-19	R-21	Baseline
Floors over Unheated Spaces	R-19	R-38	1.22
Basement Walls	R-10	R-22	9.71
Foundation	R-19	R-19	Baseline
Exterior Doors	R-2	R-5	Baseline
Windows	U-0.4	U-.35	5.03

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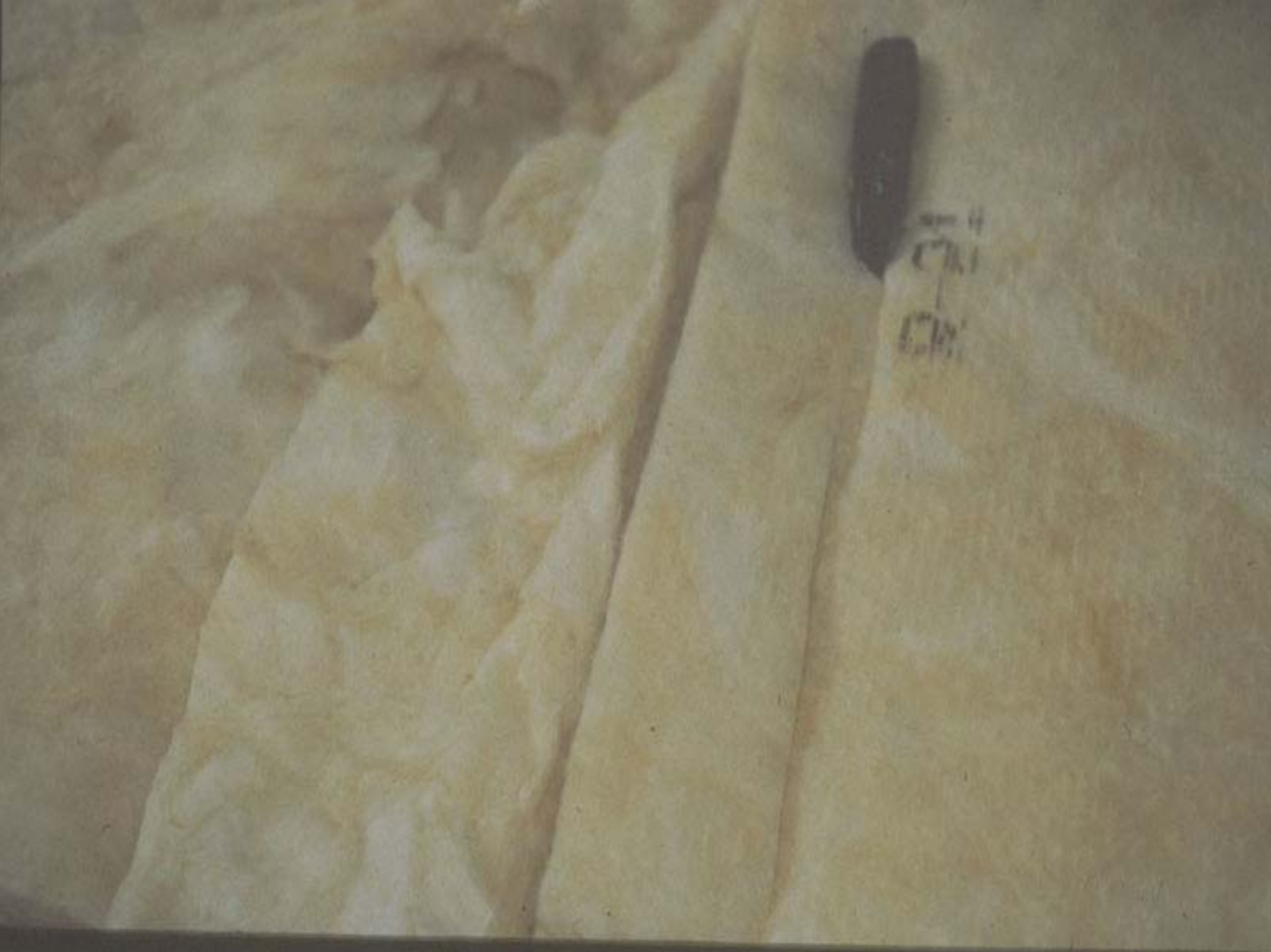


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R-21
901185

Code comparisons

Component	NWPCC	2000 IECC	Montana
Ceiling	49	49	38
Wall above ground	21	21	19
Floor over unheated spaces	38	21	19
Windows U values	.35	.35	.40
Basement wall	22	11	10*
Crawlspace wall or floor above	n.a.	20	19
Slab on grade	n.a.	13	6

Commercial Energy Code

- MEC incorporates ASHRAE 90.1 - 1989 by reference.
- Montana is more than a decade behind ASHRAE's current. guidelines for energy efficient construction (ASHRAE 90.1 - 2001).
- ASHRAE 90.1 2001 has higher minimum efficiency requirements for HVAC equipment and lower lighting power density requirements.

ASHRAE 90.1-1989 vs. ASHRAE 90.1 - 1999 HVAC requirements

Product	Estimated Full Load Efficiency Improvement
Unitary Air Conditioners and Condensing Units	~7.6%
Unitary and Applied Heat Pumps	~9.2%
Electrically Operated Water Chillers	~16.8%
Absorption Chillers	~5.2%
Package Terminal Air Conditioners and Heat Pumps	~22.4%
Room Air Conditioners	~10.1%

Code enforcement

- Responsibility of building code jurisdictions: 39 cities and 3 counties
- Not all these enforce for commercial buildings or residential with more than 4 units.

Code enforcement (cont.)

- Building Codes Bureau, Department of Labor and Industry enforces commercial and large residential where local jurisdictions don't.
- Builder provides self-certification of code compliance for residential outside building code jurisdictions (~70% of housing starts)


ENERGY EFFICIENCY COMPONENTS
#5 CREEK LANE
THIS LABEL MUST BE PERMANENTLY AFFIXED BY HOME BUILDERS TO THE INTERIOR BREAKER PANEL ON ALL NEW RESIDENTIAL BUILDINGS, AS REQUIRED BY SECTION 50-60-803, MONTANA CODE ANNOTATED

Tax Implications

- Homeowners installing above energy code features eligible for up to $500 tax credit.
- Credit is 25% of the extra cost of the building component.
- When the credit was capped at $150 and 5%, 2,588 taxpayers claimed $201,445.
- As of 2002 the credit was raised.

Building Code Adoption Process

- The Department of Labor and Industry adopts all codes.
- Building Code Council, up to 11 members appointed by the Governor, advises the department.
- Energy efficiency is specifically identified as a goal, as is cost (but not cost-effectiveness).

Status of energy code update

- At the end of 2002, the Building Codes Bureau announced plans adopt 2000 IECC.
- Following the passage of SJR 13, the department put its work on hold.

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